This Class 585 is considered to be an integral part of Class 260 (see the Class 260 schedule for the position of this Class in schedule hierarchy). This Class retains all pertinent definitions and class lines of Class 260.

1 **PRODUCT BLEND, E.G., COMPOSITION, ETC., OR BLENDING PROCESS PER SE**
2 .With nonhydrocarbon additive
3 ..O containing
4 ...And N containing
5 ....Additive(s) aromatic
6 .Gaseous blend
6.3 .Fluent dielectric
6.6 ..Mineral oil-containing
7 .Component of indefinite molecular weight greater than 150
8 ..Reaction product of halogenated hydrocarbon
9 ..Wax
10 ..Polymer
11 ...Containing aromatic ring
12 ...Plural polymers or copolymer of specified olefins
13 ..Mineral oil (petroleum) fraction
14 .For fuel use only
15 **HYDRATE OR PRODUCTION THEREOF**
16 **COMPOUND OR REACTION PRODUCT MIXTURE**
17 .Polymer of indefinite molecular weight
18 ..Acyclic
19 ..Containing aromatic ring
20 .Alicyclic
21 ..Polycyclo, i.e., fused
22 ...Of differing carbon content, more than three or with bridge
23 ..Unsaturated ring
24 .Aromatic
25 ..Plural rings
26 ...Polycyclo, i.e., fused
27 ....Of differing carbon content or with bridge
240 **PRODUCTION OF HYDROCARBON MIXTURE FROM REFUSE OR VEGETATION**
241 .From synthetic resin or rubber
242 .From wood
250 **ADDING HYDROGEN TO UNSATURATED BOND OF HYDROCARBON, I.E., HYDROGENATION**
251 .With subsequent diverse conversion
252 ..Dehydrogenation
253 ..Isomerization
254 .With preliminary diverse conversion
255 ..Polymerization of olefins only
256 ..Molecular weight reduction
257 .By hydrogen transfer from other hydrocarbon
258 .Hydrocarbon is contaminant in desired hydrocarbon
259 ..Hydrogenation of diolefin or triple bond
260 ...Using catalyst or support of defined structure, surface area, or pore size
261 ...Using catalyst and additional nonmetal material
262 ...Using S or Group I or II transition metal-containing catalyst
263 .With temperature or concentration gradient in reactor or specified provision for heating, cooling, or reactor control
264 .With preliminary treatment of feed or plural separation procedures
265 .Plural hydrogenation stages
266 .Hydrocarbon is aromatic
267 ..Using alkaline metal material
268 ..To produce polycyclic
269 ..Using Group VIII metal-containing catalyst with additional nonhydrocarbon agent
270 ...Co, Fe, or Ni
271 .Partial
272 ..Hydrogen supplied by water or alcohol
273 ..Using Group VIII metal-containing catalyst
274 ...Co, Fe, or Ni
275 .Using transition metal-containing catalyst
276 ..Elemental Co, Fe, or Ni

277 ..Group VIII metal with additional nonhydrocarbon agent or complexed with hydrocarbon
300 **PLURAL PARALLEL SYNTHESES**
301 .Using same catalyst, solvent, inert heat carrier, or component thereof
302 .With blending of products from two parallel reactions
303 ..And passage to further reaction
304 .Diverse parallel syntheses
310 **PLURAL SERIAL DIVERSE SYNTHESES**
311 .One synthesis rehabilitates catalyst for other, e.g., by alkylation with ester, etc.
312 .Same catalyst, solvent, or component thereof used in both syntheses
313 ..Entire catalyst composition
314 .With hydrocarbon effluent stream splitting for recycle to different syntheses
315 .With hydrocarbon recycle from later to earlier synthesis
316 ..Earlier synthesis is condensation or alkyl transfer
317 .To produce alicyclic
318 ..Having unsaturated ring
319 .To produce aromatic
320 ..Polycyclic
321 ..Having plural side-chains
322 ..Including an aromatization step
323 ..Including an alkylation step
324 .To produce unsaturate
325 ..Having triple bond
326 ..Polyolefin
327 ...From O compound feed or intermediate
328 ..Including displacement from nonhydrocarbon by entire hydrocarbon molecule, e.g., growth reaction, etc.
329 ..Including polymerization of olefin
330 ...And a preliminary unsaturation step, e.g., cracking, dehydrogenation, etc.
331 .Including alkylation to produce branched-chain paraffin
332 ..And preliminary isomerization or polymerization
350 **ALICYCLIC COMPOUND SYNTHESIS**
351 .Carotene or derivative
352 .Adamantane or derivative
353 .By shift, opening, or removal of shared-carbon ring
354 ..Cyclopentadiene from its polymer
355 ..Camphene or ten-C monocyclic from polycyclic, e.g., terpene isomerization, etc.
356 ...Camphene from pinene or derivative
357 .From nonhydrocarbon
358 ..Nonring moiety becomes ring
359 ..Halogen containing
360 .Polycyclic product
361 ..By condensation, e.g., Diels-Alder reaction, etc.
362 ...Dimerizing a cycloolefin
363 ..By double-bond shift in side-chain
364 .By condensive ring expansion, e.g., "olefin dismutation", etc.
365 .From nonring hydrocarbon
366 ..Alkadiene
367 ...Using refractory-group metal-containing catalyst
368 ....With nonmetal element or compound
369 ...Using Co-, Fe-, or Ni-containing catalyst
370 ....With nonmetal organic compound
371 .By ring expansion or contraction
372 ..Using Al group metal halide catalyst
373 ...With added hydrocarbon complex or nonhydrocarbon organic agent
374 ..Using metal-containing catalyst
375 .By alkylation or alkyl transfer
376 ..Feed has side-chain
377 .By double-bond shift
378 ..Using organometallic compound, P- or S-containing catalyst
379 .By dehydrogenation
380 ..Using H acceptor
400 **AROMATIC COMPOUND SYNTHESIS**
401 .With measuring, sensing, testing, or synthesis operation control responsive to diverse condition
402 .Exploiting or conserving heat of quenching, reaction, or regeneration

403 .Using apparatus of recited composition
404 .By ring expansion or contraction
405 ..Using transition metal-containing catalyst
406 .By dimerization of vinyl aromatic
407 .By ring formation from nonring moiety, e.g., aromatization, etc.
408 ..Nonhydrocarbon feed
409 ...Aromatic or carbonyl-containing reactant
410 ..Aromatic feed
411 ...Using metal-containing catalyst
412 ..Plural stage, with moving catalyst or with specified flow rate or procedure
413 ..With preliminary treatment of feed or plural separation procedures
414 ..Using metal-free H acceptor
415 ..Product compound has more C atoms than feed compound, e.g., cyclic polymerization, etc.
416 ...Triple bond-containing feed
417 ...Using transition metal-containing catalyst
418 ..Using transition metal-containing catalyst
419 ...Group VIII noble metal
420 ...Group VI metal
421 ....With alkaline metal compound
422 .By condensation of entire cyclic molecules or entire hydrocarbyl moieties thereof, e.g., polymerization, etc.
423 ..With plural separation procedures
424 ..Plural stage or with preliminary treatment of feed
425 ..Ring carbon of one molecule joined to ring carbon of other
426 ...Through residue of nonring molecule, e.g., acetylene, etc.
427 ...Arylene bond formed using metal-containing agent
428 ..Nonring moiety of one molecule bonded to nonring moiety of other, e.g., polystyrene, etc.
429 ...Through residue of nonring molecule, e.g., butadience, etc.
430 .From alicyclic
431 ..Polycyclic product or with olefinic unsaturation in feed
432 ...Cymene product
433 ..Using H acceptor or Cr-, Mo-, or W-containing catalyst
434 ..Using noble metal catalyst
435 .Having alkenyl moiety, e.g., styrene, etc.
436 ..Polycyclic product or from nonhydrocarbon feed
437 ...O-containing feed
438 ..By condensation using metal-containing catalyst
439 ..By C removal, e.g., cracking, etc.
440 ..By dehydrogenation
441 ...Plural stage or with plural separation procedures
442 ...Using halogen or S
443 ...Using elemental O
444 ...Using metal oxide, sulfide, or salt
445 ....Cr-, Mo-, or W-containing
446 .By condensation of entire molecules or entire hydrocarbyl moieties thereof, e.g., alkylation, etc.
447 ..With specified flow rate through reactor or flow procedure within or at entrance to reactor
448 ..With preliminary treatment of feed
449 ..Plural alkylation stages
450 ..With plural separation procedures
451 ...Including dissolving or solids formation or separation
452 ..Attachment to side-chain, e.g., telomerization, etc.
453 ...Resulting side-chain has less than four C atoms
454 ..Feed other than hydrocarbon, hydroxy, monohalide, or ether
455 ..Resulting side-chain restricted to more than five C atoms, e.g., "detergent alkylate", etc.
456 ...Using halogen-containing catalyst

457 ..Using organometallic compound catalyst
458 ..Using S-containing catalyst
459 ..Using Al halide catalyst
460 ...And additional metal-containing or nonhalide inorganic agent
461 ...Complexed, e.g., sludge, etc., or with additional extraneous organic agent
462 ..Using halogen-containing catalyst
463 ...Alumina containing
464 ...HF
465 ...B trifluoride in a complex or with additional nonhydrocarbon agent
466 ..Using P-containing catalyst
467 ..Using metal, metal oxide, or hydroxide catalyst
468 ...Noncrystalline, and containing Al and Si
469 .From nonhydrocarbon feed
470 .By alkyl or aryl transfer between molecules, e.g., disproportionation, etc.
471 ..Product is polycyclic, of increased side-chain length, or a specific position polyalkyl benzene isomer
472 ...Using Al or B halide catalyst
473 ....Meta- or 1,3,5-alkyl benzene
474 ..Plural compounds of different weight become midweight compound, i.e., averaging
475 ..Using crystalline aluminosilicate catalyst
476 .By ring opening, removal, degradation, or shift on chain or other ring
477 .By isomerization
478 ..With plural separation steps
479 ...Including a crystallization step
480 ..Using metal oxide- or sulfide-containing catalyst
481 ...Crystalline aluminosilicate
482 ...Pt-group metal containing
483 .By dealkylation
484 ..Polycyclic
485 ...Using catalyst and H
486 ..Using extraneous agent in reaction zone, e.g., catalyst, etc.
487 ...And steam
488 ...And H
489 ....Transition metal-containing catalyst
500 **UNSATURATED COMPOUND SYNTHESIS**
501 .With measuring, sensing, testing, or synthesis operation control responsive to diverse condition
502 .By addition of entire unsaturated molecules, e.g., polymerization, etc.
503 ..With heat conservation or using apparatus of recited composition
504 ..With specified procedure for recycle of nonhydrocarbon
505 ..Triple-bond product
506 ..Poly-double-bond product
507 ...More than two double bonds, e.g., diene polymerization, etc.
508 ....Of definite molecular weight, e.g., dimer, etc.
509 ...Using P-containing catalyst
510 ..Definite molecular weight product, e.g., dimer, etc.
511 ...Using catalyst containing metal bonded to or complexed with C, C-containing compound, or H
512 ....Al-and transition metal-containing
513 .....And N-, P-, or S-containing
514 ...Using P-containing catalyst
515 ...Using S-containing catalyst
516 ...Using alkali metal-containing catalyst
517 ..Plural serial polymerization stages
518 ..With preliminary treatment of feed
519 ...Removal of hydrocarbon fraction
520 ..Using extraneous nonhydrocarbon agent, e.g., catalyst, etc.
521 ...Hydride or organic compound or complex containing alkaline-, B-, or Zn group material
522 ....Al trialkyl
523 ....Transition metal-containing
524 .....Ti
525 ...B-containing catalyst
526 ...S-containing catalyst
527 ...N- or P-containing catalyst
528 ....Metal phosphate

529 ....P compound on solid carrier, e.g., "solid phosphoric acid", etc.
530 ...Catalyst containing inorganic metal
531 ....Group VIII metal
532 ....Al
533 .....Al oxide, e.g., aluminosilicate, etc.
534 .Triple-bond product
535 ..With heat conservation or using solid inert heat carrier, e.g., regenerative furnace, etc.
536 ...With carrier movement through reaction zone
537 ..Using apparatus of recited composition
538 ..From organic nontriple-bond feed
539 ...By thermal conversion of hydrocarbon, i.e., thermolysis
540 ...By partial combustion of hydrocarbon
541 ....Using extraneous nonreactant, e.g., diluent, catalyst, etc.
600 .Product having more than two double bonds
601 .Diolefin product
602 ..With heat conservation or using solid inert heat carrier, e.g., regenerative furnace, etc.
603 ..From nonhydrocarbon feed
604 ...Heterocyclic
605 ....Using P-containing catalyst
606 ...O-containing
607 ....Plural O-containing organic compounds
608 ....With unsaturated hydrocarbon in feed
609 ....Alcohol
610 .....Diol
611 ......Using P-containing catalyst
612 ...Halogen-containing feed using extraneous nonhydrocarbon agent
613 ..By C content reduction, e.g., cracking, etc.
614 ...Isoprene product per se
615 ...Butadiene product per se
616 ..By dehydrogenation
617 ...Using nonhydrocarbon acceptor
618 ....Halogen-containing acceptor with elemental O
619 .....Halogen is I only
620 .....Halogen is Cl only
621 ....Elemental O acceptor
622 .....With P containing extraneous agent
623 ......Sn-containing
624 .....With metal oxide or hydroxide extraneous agent
625 ......Ferrite
626 ......Oxide of As, Bi, or Sb
627 ...Using extraneous nonhydrocarbon agent, e.g., catalyst, etc.
628 ....Moving catalyst or plural stage
629 ....Transition metal oxide or sulfide agent
630 .....Cr, Mo, or W
631 ......With other transition metal
632 ....Metal salt agent
633 ...Plural stage or with specified quench or separation procedure
634 .With heat conservation or using solid or molten inert heat carrier, e.g., regenerative furnace, etc.
635 ..With carrier movement through reaction zone or use in quenching
636 .Using apparatus of recited composition
637 .By displacement of hydrocarbon radical by hydrocarbon molecule
638 .From nonhydrocarbon feed
639 ..Alcohol, ester, or ether
640 ...Using metal oxide catalyst
641 ..Halogen-containing
642 ...Using acid, metal oxide, or salt catalyst
643 .By alkyl transfer, e.g., disproportionation, etc.
644 ..Plural stage or averaging
645 ..Using organic extraneous agent
646 ..Using catalyst containing Mo, Re, or W and another transition metal
647 ..Using Re-containing catalyst
648 .By C content reduction, e.g., cracking, etc.
649 ..Isobutylene product per se
650 ..Ethylene product per se
651 ...Using catalyst
652 ...Using O (partial combustion) or steam

653 ..Using catalyst
654 .By dehydrogenation
655 ..With plural separation procedures applied to effluent or effluent component
656 ..Using acceptor, e.g., hydrogen-exchange disproportionation, etc.
657 ...Halogen-containing acceptor
658 ...Elemental O or S acceptor with extraneous nonhydrocarbon agent, e.g., catalyst, etc.
659 ..Plural stages or with catalyst movement
660 ..Using extraneous agent containing Pt-group metal and non-Pt-group metal
661 ..Using transition metal oxide, sulfide, or salt
662 ...Cr, Mo, or W
663 ....With other transition metal
664 .By double-bond-shift isomerization
665 ..Using organometallic catalyst
666 ..Using aluminosilicate catalyst
667 ..Using P-containing catalyst
668 ..Using S-containing catalyst
669 ..Using halogen-containing catalyst
670 ..Using transition metal-containing catalyst
671 .By skeletal isomerization
700 **SATURATED COMPOUND SYNTHESIS**
701 .With measuring, sensing, testing, or synthesis operation control responsive to diverse condition
702 .Synthesis catalyst, solvent, or component thereof used as agent in hydrocarbon purification or separation
703 ..By interaction with nonhydrocarbon
704 .With control of water content of recycled catalyst
705 .With removal of catalyst component from metal-hydrocarbon complex
706 .With addition of reactor effluent component to catalyst as agent for rehabilitation or recycle
707 .With specified procedure for adding fresh makeup catalyst component to complex (sludge), support, or inert contact material
708 .By alkyl transfer, e.g., disproportionation, etc.
709 .By condensation of a paraffin molecule with an olefin-acting molecule, e.g., alkylation, etc.
710 ..With catalyst rehabilitation by reversion from different compound or HF complex
711 ..Including nonhydrocarbon reactant
712 ..With removal of organic halogen contaminant
713 ...Using solid catalyst or sorbent
714 ..With introduction of same material at more than two serially spaced points of reaction zone system
715 ..With autorefrigeration
716 ..Plural alkylation stages
717 ..With preliminary treatment of feed
718 ..With coalescing or sorption of, or addition of specific agent to, effluent or effluent component
719 ..With plural separation procedures applied to effluent or effluent component
720 ..With specified flow procedure within or at entrance to reactor, e.g., by use of named mixing device, etc.
721 ..Using extraneous nonhydrocarbon agent
722 ...Aluminosilicate or organometallic
723 ...HF
724 ....With additional nonhydrocarbon agent
725 .....B-, N-, or P-containing
726 ...B-containing
727 ...Al halide
728 ....With additional nonhydrocarbon agent
729 .....H halide
730 ...S-containing
731 ....Sulfuric acid with additional nonhydrocarbon agent

732 ...O-containing
733 .From nonhydrocarbon feed
734 .By isomerization
735 ..Using temperature gradient or material concentration gradient or introduction of same material at more than two serially spaced points of reaction zone system
736 ..Plural isomerization stages
737 ..With preliminary treatment of paraffin feed
738 ..With specified isomerizate purification or separation procedure
739 ..Using aluminosilicate catalyst
740 ..Using B- or P-containing catalyst
741 ..Using Al halide catalyst
742 ...With additional metal halide
743 ...With S-containing or free or organic halogen agent
744 ...With metal oxide or elemental carbon, e.g., supported, etc.
745 ...With added organic agent or in complex with organic material
746 ...With inorganic material other than halogen-containing
747 ..Using halogen-containing catalyst
748 ...With alumina
749 ....F
750 ..Using metal oxide or hydroxide catalyst
751 ...Including free metal
752 .By C content reduction, e.g., hydrocracking, etc.

800 **PURIFICATION, SEPARATION, OR RECOVERY**

801 .By conversion of solid to gas, e.g., sublimation, etc., or by melting or squeezing out liquid from solid natural source
802 .By plural serial diverse separations
803 ..To recover alicyclic
804 ..To recover aromatic
805 ...Xylene or ethylbenzene
806 ...Having unsaturated or one-C side-chain
807 ...Including steps of distillation and agent addition
808 ....Agent contains N, carbonyl, or dihydroxy moiety
809 ..To recover unsaturate
810 ...Diolefin
811 ...Including treatment with S-containing agent
812 .By cooling of liquid to obtain solid, e.g., crystallization, etc.
813 ..Using specified holding time or specified cooling rate
814 ..With treatment of mother liquor after crystal separation
815 ..With dissolving or plural serial crystallizations
816 ..With addition of extraneous material
817 ...Before crystal formation
818 .By membrane, selective septum, or coalescer
819 ..Aromatic permeate
820 .By contact with solid sorbent
821 ..With measuring, sensing, testing, or recycle of sorbate to same sorption zone
822 ..Plural serial sorptions
823 ..Sorbate is nonhydrocarbon or chemically undetermined component, e.g., "color-former", etc.
824 ...O-containing sorbate
825 ..With fractional or linear desorption, e.g., chromatography, etc.
826 ..With specified sorbent rehabilitation procedure or agent, e.g., desorbent, etc.
827 ...Cyclic sorbate
828 ....Aromatic separated from other aromatic
829 ...Unsaturated sorbate
830 ..Sorbent is or contains organic
831 ..Cyclic sorbate
832 .Polymerization and depolymerization
833 .By addition of extraneous agent, e.g., solvent, etc.
834 ..With contact procedure involving particular apparatus or more than two moving streams
835 ..With fractional disengagement from agent by use of other agent

836 ..Different, sequentially used agents
837 ...One agent is a diluent, i.e., nonselective solvent or heat exchange material
838 ...Resolution of feed into more than two different components
839 ...Later agent disengages earlier, e.g., decomplexing agent, etc.
840 ....Later agent is hydrocarbon
841 ..H
842 ..HF and another fluoride
843 ..Ag
844 ...By interaction with monoolefin
845 ..Cu
846 ...Ammoniacal, e.g., Cu ammonium acetate (CAA), etc.
847 ....Triple-bond compound separated
848 ...Plural metal or nonhalide Cu compound-containing
849 ...Cu halide with added material other than water
850 ..Group VII or VIII transition metal-containing, e.g., Werner complex formation, etc.
851 ..Group III nontransition element-containing
852 ...Al
853 ..Alkaline metal-containing
854 ...Elemental metal, oxide, or hydroxide
855 ..Metal-containing
856 ..S containing
857 ...S dioxide, sulfolane, or sulfolene
858 ...Sulfuric acid
859 ....Interaction with tertiary olefin
860 ..N-containing
861 ...Ammonia
862 ...Carbonyl moiety-containing
863 ...Interaction with aromatic
864 ..Organic agent
865 ...Heterocyclic or polymeric
866 ...Acid, anhydride, ester or ether
867 ...Hydrocarbon
868 ..Inorganic O-containing agent
899 **MISCELLANEOUS PROCESS, E.G., INDETERMINATE MODIFICATION OF A PROPERTY, STORAGE, TRANSPORTATION, ETC.**

CROSS-REFERENCE ART COLLECTIONS

CATALYST AND RECYCLE CONSIDERATIONS

900 .Rehabilitation of H acceptor
901 .With recycle, rehabilitation, or preservation of solvent, diluent, or mass action agent
902 ..Recycle of solvent and catalyst
903 .With hydrocarbon recycle to control synthesis reaction, e.g., by cooling, quenching, etc.
904 .Catalyst rehabilitation by reversion from different compound
905 .By-product conversion to feed
906 .Catalyst preservation or manufacture (e.g., activation, etc.) before use

HEAT CONSIDERATIONS

910 .Exploiting or conserving heat of quenching, reaction, or regeneration
911 .Introducing, maintaining, or removing heat by atypical procedure
912 ..Molten material
913 ..Electric
914 ..Phase change, e.g., evaporation, etc.

APPARATUS CONSIDERATIONS

920 .Using apparatus of recited composition
921 .Using recited apparatus structure
922 ..Reactor fluid manipulating device
923 ...At reactor inlet
924 ..Reactor shape or disposition
925 ...Dimension or proportion
926 ...Plurality or verticality

SPECIAL CHEMICAL CONSIDERATIONS

930 .Process including synthesis of nonhydrocarbon intermediate
931 ..Metal-, Si-, B-, or P-containing, e.g., Grignard, etc.
932 ..Carboxyl-containing, e.g., acid, etc.
933 ..N-containing
934 ..Chalcogen-containing

935 ..Halogen-containing
940 .Opening of hydrocarbon ring
941 .Isotope exchange process
942 .Production of carbonium ion or hydrocarbon free-radical
943 .Synthesis from methane or inorganic carbon source, e.g., coal, etc.
944 .Radiation-resistant composition
945 .Product is drying oil
946 .Product is waxy polymer
947 .Terpene manufacture or recovery

MISCELLANEOUS CONSIDERATIONS

950 .Prevention or removal of corrosion or solid deposits
951 .Reaction start-up procedure
952 .Reaction stopping or retarding
953 .Pulsed, sonic, or plasma process
954 .Exploiting mass-action phenomenon
955 .Specified mixing procedure
956 .Condition-responsive control and related procedures in alicyclic synthesis and purification

FOREIGN ART COLLECTIONS

FOR 000 **CLASS-RELATED FOREIGN DOCUMENTS**